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Managing End User Resistance in ERP Installations

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Abstract

Enterprise Resource Planning (ERP) systems offer significant benefits to the implementing organization, but the high failure rate of ERP installations reflects management tendencies to disregard or mismanage individual users’ attitudes toward the new system. Researchers have explained that end user fear and resentment is transformed into resistance which can doom a new system to failure. They consistently recommend that to reduce such resistance, training programs should focus on easing employee fears regarding potential job loss, increased workloads and increased accountability. This paper will posit that to ease resistance, successful training programs need to tailor instruction to the individual needs of the participants with attention to such issues as: how the end-users will do their current work under the new regime, how future training would provide ample guidance in the new collaborative work environment, etc. These and other suggestions will be described to demonstrate development of effective training programs.

Introduction

An Enterprise Resource Planning (ERP) system is a commercial software package designed to facilitate the flow of information between the major business functions of an organization. These functions can include all elements of the value chain from raw material purchases, inventory management, production, goods shipments, invoicing, accounting, and human resource management (Peslak et al. 2007-2008). Implementing an ERP system is often risky, costly, and time intensive, but when successful, can offer myriad benefits to the organization. Some of these
benefits include streamlined integrated business processes, improved management visibility into operations via real-time reporting, auditing and financial controls, reduced data redundancy, and improved information sharing throughout the enterprise (Hoetzel 2005).

Given the potential benefits ERP offers businesses, the importance and size of the ERP market has grown significantly during the last decade. Seventy percent of Fortune 1000 companies have ERP systems or will have them in the near future, and mid-level organizations have become a major market for ERP vendors despite the high cost (Hoetzel 2005). According to 2008 data, the average total cost of ownership of an ERP solution is $6.2 million, or 6.9% of a typical company’s annual revenue (Panorama 2010).

Despite the potential benefits, the decision to implement an ERP system poses significant risk to an organization. More than half of ERP projects end in failure and as many as 90% are late (Hoetzel 2005). A 2009 survey by Panorama Consulting Group indicated that 67.5% of companies surveyed fail to realize at least half of the business benefits they expected from their ERP systems. At least 40% of these companies experienced major operational disruptions post go-live, such as the inability to ship products or to close the books (Panorama 2010).

Numerous studies on ERP projects cite end user reluctance or unwillingness to use a newly implemented system as a primary cause of ERP system failure (Holsapple et al. 2005). Although the decision to implement an ERP system is made at the corporate level, the success of the system is highly dependent on the individual end users who operate the purchased system (Ahmed et al. 2006). Accordingly, the attitudes of individual users towards the system have significant impacts on its success. An effective change management effort is critical in getting
personnel to accept the introduced changes as well to managing any resistance to them (Ahmed et al. 2006).

A critical component of an effective change management effort is a robust end user training program which prepares employees to perform their jobs on the new system. Training is one of the most cited critical success factors in ERP projects (Esteves et al. 2002) because it helps lower organizational resistance (Ahmed et al. 2006). If users do not understand how the ERP system works, they often invent their own processes or work around it, thereby preventing the organization from realizing the full benefits of the new system (Holsapple et al. 2005).

Given the significance of ERP systems in the business world and the tremendous investment they represent, researchers have devoted significant research to these two ERP countermeasures to end user resistance that are critical to ERP implementation success (i.e. successful change management and an effective end user training program). Whereas much of the research on change management intends to mitigate and address the sources and consequences of end user resistance that can thwart an implementation, literature on ERP training methodologies tends to address training from a skill building task operations approach (Coulson 2002). This perspective overlooks elements of end user resistance that are so relevant to an implementation effort.

Accordingly, the purpose of this paper is to review key sources of end user resistance to ERP implementation and to propose how attentiveness to this resistance in training could enhance an organization’s likelihood of ERP success.

**End User Resistance**

End user resistance can be defined as “behavior which is intended to protect an individual from the effects of real or imagined change” (Zander 1950) and is a principle cause of ERP failure
ERP implementations often trigger a diverse group of covert and overt opponents within the organization (Ahmed et al. 2006) whose resistance behaviors can range from passively destructive (e.g. expressing negative feelings to coworkers or making careless errors) to proactively destructive (e.g. deliberately sabotaging the work process or working around the system) (Shang and Su 2004). The success of any information technology depends on users accepting it (Holsapple et al. 2005), and if resistance behaviors are not managed appropriately they can doom an ERP project (Hoetzel 2005).

Transition to an ERP system often entails significant business process reengineering efforts. Unlike traditional software projects in which a system is tailor made to fit the company’s existing business processes, ERP systems represent packaged software solutions that encapsulate “best business practices” (Holsapple et al. 2005). Few ERP packages precisely meet the needs of the implementing organization. While system customization may be possible, it is often avoided. Customizing an ERP package can be unexpectedly expensive and complicated, often delaying the delivery of the benefits of an integrated system. Customization can compromise the “best practices” embedded in the system (Garg 2010) and challenge the organization’s ability to maintain future upgrades (Holsapple et al. 2005).

Discrepancies typically exist between functionality offered by an ERP package and that required by the adopting organization: thus, the business often must conform to the system. Accordingly, ERP implementation often requires the company to make radical organizational and process changes to match those allowed by the software (Holsapple et al. 2005). These sweeping organizational changes can profoundly affect employees who are expected to adapt to the new processes. Employees are often fearful of the implications of the changes and resentful of disruptions to their routines. This fear and resentment often translate into resistance toward the
new system and the consequent changes to business processes. The basis for such fears falls into three categories: (1) fear of job loss; (2) fear of increased work effort; and (3) fear of increased accountability.

**Fear of Job Loss**

ERP requires organizations to reengineer their key business processes in fundamental ways, such as redefining job responsibilities and restructuring the organization. Thus, employees may worry about losing their position or status in the company (Hoetzel 2005), especially during periods of economic downturn (Lau 2003). Employees are often immediately wary of management-imposed changes that name increased efficiency and reduced costs among its benefits. If employees are not educated and informed about the changes and assured of their job security, they will resist or sabotage the ERP implementation (Garg 2010). The technical complexity of ERP implementation projects generally necessitates that the organization hire teams of consultants. The presence of consultants on the job site can heighten unease among employees who are already fearful of job loss (Hoetzel 2005). Researchers Wargin and Dobie found that resistance among middle and upper management emerges from how the translation of ERP-related changes redefines the organizational structure and the allocation of competencies and responsibilities (Wargin and Dobie 2001). This is consistent with findings from behavioral scientists who propose that people do not resist technical change as much as the accompanying social change (Ahmed et al. 2006). Researchers Dent and Goldberg suggest that employees are not resisting the new technology so much as they may be resisting the associated loss of status, pay or comfort (Dent and Goldberg 1999).
ERP is often an unfamiliar concept to employees and its technical complexity can be daunting to users who are anxious about their ability to learn and adapt to the new system. The technologically complex nature of an ERP project causes human factors, such as training, to be de-emphasized. If management does not assure employees they will be adequately trained, these employees are likely to worry they will be unable to perform their job in the new system (Ahmed et al. 2006). Employee fears and consequent resistance are often amplified by the fact that the ERP decision is made at the corporate level and employees have little or no control over the choice of technology deployed or level of training offered (Hoetzel 2005).

Fear of Increased Work Effort

An ERP system’s centralized and integrated databases usually impose additional system checks and controls on business processes which can increase task processing time and frustrate the end user, particularly in the beginning (Sharma 2005). In addition, an ERP system may have a more complicated interface and can require an employee to process additional screens and fields. If the interface is not user-friendly, it may be more difficult for the user to navigate without help. This may cause the user to feel that the new system requires additional effort without any visible returns (Sharma 2005).

Typically an ERP system requires immense data input (Sharma 2005). For many organizations this can increase transaction processing time and require employees to interact with additional people to obtain the data the system requires. When users discover the amount of data entry required, they often resist (Allen 2005). Moreover, the increased workload associated with heightened data entry requirements disproportionately impacts non-management employees, which can further contribute to employee resistance and resentment (Allen 2005).
Fear of Increased Accountability

Accurate data is critical to the proper functioning of an ERP system. The criticality of this accuracy imposes pressure on the employee to minimize mistakes, even while learning a new, complicated system. If inaccurate data is entered into the common database, it can negatively impact the entire enterprise by causing errors in market or production planning, materials management, financial planning, and forecasting (Garg 2010). This can convince users that the system does not work and make them resent having to use it.

Employees who worked in functional silos pre-ERP are invariably apprehensive about the integration and transparency imposed by the new system onto workflow processes (Sharma 2005). Most users have never worked within a system in which they had to deal with data related to departments outside their own (Crowley 1998), and worry about being accountable for the downstream effects of their transactions in collaborative system, particularly if they do not understand what the effects are (Hoetzel 2005).

Finally, most ERP systems track users’ system activity so that even low-level business transactions can be traced back to the individual who performed them in the system. This makes employees more accountable for their system activity and more fearful of making errors.

End User Training

Because ERP systems touch and reengineer so many aspects of a company’s operations, their successful deployment and use are critical to organizational success (Yingjie 2005). Their complexity demands that end users receive considerable amounts of training to ensure the company can realize the full benefits of their investment in ERP (Coulson 2002). As researcher Jiang Yingjie noted, “An excellent ERP system without skilled users means nothing; the system
must be well-operated to achieve optimum performance. The basis of ERP is still human” (Yingjie 2005). Comprehensive education and training support the need for skilled workers.

Training is an effective countermeasure to end user resistance. Inadequate training often results in mishandling of the system which can generate errors throughout the enterprise (Coulson 2002). Moreover, studies have shown that without proper training, 30-40 percent of front-line workers are unable to handle the demands of the new system at go-live (Hoetzel 2005). This can result in financial loss, employee frustration, and customer dissatisfaction.

Although training is perhaps the most cited critical factor in ERP success (Hoetzel 2005), organizations often address it as an afterthought (Peslak et al. 2007-2008) and fail to allocate enough funds or time to the effort. The recommended budget for end user training is 10% - 15% of the total cost of the ERP deployment (Crowley 1998). Even when the appropriate funds and time are available, appropriate training strategies are often lacking and contribute to implementation failure (Yingjie 2005).

ERP end user training traditionally has been approached from an IT training perspective. In this approach, training demonstrates to users how to complete various activities in the system, without contextualizing their purpose or the impact they have on related business processes (Coulson 2002). For example, training on how to set up account master data would explain the step-by-step process for creating the account (e.g. the fields to complete and the buttons to click), often without explaining how the account would be used, or how the account configuration would affect accounting transactions posted by various departments.

This traditional, IT-based, approach is inadequate and neglects end user training needs that derive from the business process changes imposed by ERP. An ERP implementation is not an IT
project, but a people project, and if not treated as such, the system will never realize its full potential. Ignoring the “people” side of the project is similar to deploying technology in a vacuum: business processes will not be properly reengineered to align with software requirements, and staff will reject it or indirectly cause the system to fail (Garg 2010). As explained earlier, ERP radically alters and integrates the structures and processes of an organization in a way that generates resistance from employees. While some of this resistance stems from employee concerns about technical competency, if training fails to address the myriad other sources of resistance that derive from reengineering, it is inadequate.

The sweeping changes produced by ERP require a training program that addresses these changes and how they affect employees. While the curriculum must include some task-based instruction, the more important part of the training is to understand the new flow of information and processes through the business itself (Peslak et al. 2007-2008). Employees need to understand the integration within the system and how the work of one employee can affect another (Esteves et al. 2002).

A training program that addresses these contingencies and business process changes may still be useless if users fail to understand the importance of training and do not take it seriously. Training, then, must embody a change management focus and seek to address as many sources of employee concern and resistance as possible to maximize the effectiveness of the training program.

**Blending Change Management and Training**

Effective change management for an ERP implementation entails acknowledging employee resistance to the changes as natural and expected, giving importance to employee concern,
having regular and open communication, and promoting participation in the new processes (Ahmed et al. 2006). This section considers how the various sources of employee fear and resistance discussed earlier can be mitigated during different phases of the training process.

**Acknowledge the Importance of Training to a Successful Deployment**

An effective end user training program is critical to implementation success by improving employee participation and involvement in the ERP initiative (Esteves et al. 2002). Adequate funds and resources for training should be factored into the budget and project plan from the beginning. Training is one of several project areas that are most likely to result in budget overruns during an implementation (Allen 2005), often accounting for approximately 15% of the total project budget when executed effectively (Crowley 1998). Organizations that underfund training usually find they end up paying more than the added training would have cost (Allen 2005).

**Prepare Users for Training and Upcoming Changes**

Introduce the concept of ERP to users in advance of training so they will understand the changes to anticipate. This reduces uncertainty and resistance for employees (Esteves et al. 2002). Explaining the reasons for the implementation and stressing the role of the ERP system in the organization’s future is important to encouraging users to adhere to the new processes and take training seriously (Crowley 1998). Regularly inform users about the quantity and quality of training they will receive. This will alleviate employee concerns about potential job loss or about their ability to learn the new system. Employees are less likely to worry about being let go if the company is investing training effort in them (Esteves et al. 2002). Start creating any cultural transformations that are necessary for the new system to succeed. Some companies may need to
encourage a transition to a more collaborative culture. Users who have worked in functional silos are often apprehensive about transitioning to a more collaborative and transparent system that requires employees to be more accountable for the impact of their system activities (Sharma 2005).

**Analyze End User Characteristics and Training Needs**

Different employee education levels imply different training needs (Holsapple et al. 2005). Higher educated users (i.e. college graduates) may more easily adapt to a complex ERP system because they are more likely to have learned information system skills during school. Accordingly, these users may be less anxious and resistant toward the new system (Holsapple et al. 2005). ERP user satisfaction is greater among higher educated users. Management should consider how being attentive to the impact of education level on training experience can mitigate resistance.

ERP systems require a high level of operating proficiency (Dowlatshahi 2005). Employees who lack basic computer skills are likely to be especially challenged by the new system. Identifying these users and offering them basic computer training in advance can pay dividends later by reducing employees’ technological anxiety, and increasing the likelihood the employee will be able to “keep up” during subsequent ERP training.

Research has shown that ERP user satisfaction is higher among management than non-management personnel. Managers reap many of the benefits provided by ERP’s functionality, such as its real-time enterprise-wide reporting and embedded auditing and process control mechanisms that are important to management positions. In contrast, non-management users often view ERP systems as constraints due to the manner in which it limits flexibility in the task
processing activities they perform (Holsapple et al. 2005). Understanding that users’ perceptions of the benefits vary by role can help change management find ways to address these perceptions.

User resistance behaviors are a response to management-imposed changes in job and work methods (Shang and Su 2004). Management users are more likely to participate in the ERP adoption process, meaning that they have a greater understanding of the system and the business-related changes that will occur, and are therefore less resistant to change. The operational users of the technology, however, have the changes imposed on them “from above” which often makes them more resistant (Ahmed et al. 2006). Finding ways to get end users informed of and involved in the process changes early on could help generate enthusiasm for the new system.

Select Trainers Wisely

Users must be convinced that the training program will prepare them appropriately for their new responsibilities. A number of studies have cited incompetent or unknowledgeable trainers as contributors to implementation failure (Esteves et al. 2002). During training the instructor needs to impart users with confidence in the system and their ability to use it. If users do not trust the trainer’s competence, the credibility of the training program is undermined. Trainers need to be experts in the business processes they are teaching and understand the relationship between company business processes (Esteves et al. 2002). In addition, they should demonstrate enthusiasm for the new system and training effort. By identifying trainers in advance, management can ensure their competence and ability to deliver training effectively.

Develop a Training Timeline

The training schedule should be carefully planned to maximize employees’ knowledge retention so they will feel prepared to use the new system at go-live. While basic ERP training should be
offered early-on to prepare users for upcoming changes, formal system training should be
delivered as close to go-live as possible (e.g. two to four weeks in advance of use) (Esteves et al.
2002). If the ERP system is being deployed in phases, the training program can be deployed in
phases as well. The more confident employees feel about their retention of training material, the
less anxiety they should feel about using the new system.

The training schedule should be developed far enough in advance to ensure that employees can
actually attend (Esteves et al. 2002). Training deployment often occurs at an intensely busy
point in the project. End users are often overwhelmed with performing their job tasks on the old
system while preparing for the changes that will occur at go-live. Managers need to enforce the
importance of training by treating it as a priority and setting aside time for staff members to
attend scheduled classes (Crowley 1998). Change management should acknowledge and attempt
to alleviate the added responsibilities placed on employees at training time so employees do not
feel that their training is compromised.

**Training Deployment**

During training deployment, every care should be taken to enhance the end users’ experience and
to generate enthusiasm for the new system. This entails reminding users why the training is
important and making them feel confident in their ability to use the new system. The training
deployment effort must be thoughtfully designed and executed, thoroughly attentive to end user
needs.

For users to learn and apply the skills taught in training, trainees must feel that the course is
relevant to their jobs (Esteves et al. 2002). At the beginning of each course, trainers should
explain the benefits and objectives of the ERP implementation and the training itself. Users need
to understand that the training represents an investment in them by the organization. As such, management should demonstrate support for the training. This could entail trusted organizational figures making an appearance during training and expressing their enthusiasm for the new system and training effort.

Training Content

All users must be trained on ERP basics, such as an overview of the system and its integration between processes. It is crucial to impart users with an understanding of the collaborative nature of the system and how actions of one employee affect system processes (Garg 2010). The collaborative nature of the system is a very new concept to most employees, so training should emphasize how information is shared throughout the enterprise.

Explain clearly to users how the business processes and job roles are affected by the implementation. Process flows, and comparisons of “as is” versus “to be” processes, can simplify effort. Transformed processes should be documented to help users resist the desire to cling to established routines or work around the system (Scott 2008).

Although users need to learn the step-by-step processes for completing tasks in the new system, training should include the rationale for the processes embedded in the software. Understanding the rationale facilitates learning and is critical for technology acceptance (Scott 2008). Training should feel relevant to employees and be tailored to their individual needs as much as possible. Managers, for example, require more training on the decision-making and analysis features ERP offers, whereas training for operational employees should emphasize how to perform daily transactions (e.g. data entry) (Garg 2010). Users will be more attentive to training if they feel it is relevant to them.
Ongoing Support – Post Go-Live

Investment in training documentation and other “help” resources is important for ERP implementation and reflects management attentiveness to end user needs. For it to be effective, however, users must be aware of the support that exists and how to use it. Help resources should be introduced and practiced during end-user training so that employees feel competent accessing and using them at go-live.

Usually when an employee gets stuck or needs help in the system, they prefer to request help from another person instead of consulting help documentation (Scott 2008). While individual help is an expensive form of support, it could be worthwhile short term during the go-live phase of the implementation. Go-live can be overwhelming for employees who are struggling to perform their daily job responsibilities at the same pace in the new system and it is easy for them to get frustrated. Knowing they can quickly reach out for help can ease some of the anxiety and frustration with the system for end users. As users get more comfortable with the system, they can be encouraged to leverage training documentation for help.

ERP help documentation is a more cost-effective form of end user support than individual, help-desk type support. When users perceive the ERP documentation to be helpful, they are more likely to use it for task support and to be satisfied with the results (Scott 2008). Accordingly, improving document usability or “friendliness” pays dividends. Researchers found that small usability improvements can produce large cost savings (e.g. by reducing errors and the need for live support) as well as increase user productivity and satisfaction. In one study, user-friendly online help for an ERP system reduced task completion time and error rates by 25% (Scott 2008).
Documentation navigability, structure, and scope can greatly influence its perceived usefulness to end users. Documentation should be easy to search and logically structured to facilitate quickly finding the necessary information. While the documentation should be thorough enough to contextualize processes for end users, training developers should be wary of frustrating users by overloading them with details. Online help documentation can alleviate some of these challenges with features such as hyperlinks and search capabilities (Scott 2008).

**Conclusion**

ERP systems offer significant benefits to the implementing organization, but the high failure rate reflects management tendencies to disregard or mismanage individual users’ attitudes toward the new system. As we have seen, ERP implementations often generate fear and resentment from employees due to the restructuring, increased workload, and accountability imposed on them. When not addressed appropriately, end user fear and resentment transform to resistance which can doom a new system to failure. Employees may erode the permanence of newly established processes by working around the system, or they may damage the system by (intentionally or unintentionally) corrupting data that is shared throughout the enterprise. Clearly, end users wield considerable power over whether an implementation effort will be successful, and their attitudes towards ERP need to be taken seriously.

End user training is critical to ERP success, but like ERP implementations, tends to lack an end user focus. Traditionally, ERP training efforts have taken an IT-based approach which has focused on giving users step-by-step instructions on discrete system tasks. The training often neglects content which is important to end users. Relevant content would include such topics as an overview of ERP, explanations of changed business processes, and how individual
employees’ responsibilities and job roles are altered. Ignoring these topics would result in the training failing to address key sources of end user resistance, thus leaving the ERP project at risk.

Effective ERP training programs require a change management focus that is unfalteringly attentive to the end user and their concerns before, during, and after training. Prior to initiation, management should prepare users for training by explaining how ERP will transform the business and by assuring users that the upcoming training will adequately prepare them for these changes. Management should also begin cultivating any necessary cultural changes (e.g. transition to a more collaborative work environment) and analyzing the needs of various user groups. During training, management should ensure users attend scheduled classes, and that content is tailored to individual audiences as much as possible. While training will include some step-by-step instructions on system tasks, instructors should contextualize the activity in terms of the larger impact on the system. After training, management should ensure an effective support system is in place to help users, and that employees know how to use it. Attentiveness to documentation usability and navigability will discourage users from turning to more expensive forms of support (e.g. in-person, “live” help).

If organizations implementing ERP systems remain attentive to the needs of end users, businesses can avoid many or all of the destructive manifestations of user resistance to the new system. Ideally, an end user-focused training approach, which addresses the sources of user resistance, can improve businesses’ likelihood of a successful ERP implementation and employee satisfaction with ERP.
References


